UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,666	02/05/2002	Takashi Hiroi	501.41125X00	4688

20457 7590 01/25/2010

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
BERMAN, JACK I	

ART UNIT	PAPER NUMBER
2881	

MAIL DATE	DELIVERY MODE
01/25/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/062,666
Filing Date: February 05, 2002
Appellant(s): HIROI ET AL.

Melvin Kraus
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 16, 2009 appealing from the Office action mailed May1, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,047,083	MIZUNO	4-2000
5,963,314	WORSTER ET AL.	10-1999
6,539,106	GALLARDA ET AL.	3-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 3, 5, 6, 12-16, and 25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno (U. S. Patent No. 6,047,083) in view of Worster et al. (U. S. Patent No. 5,963,314). Mizuno discloses a method comprising the steps of: irradiating a charged particle on a surface of a substrate on which a pattern is formed (lines 57-65 in column 3); producing an image of said substrate surface by detecting secondary electrons generated from said substrate as a result of the irradiation (line 66 in column 3 through line 8 in column 4); producing a digital image by subjecting the produced image signal to A/D conversion (lines 37-39 in column 6); comparing the digital image with a reference image and extracting a defect candidate (lines 44-53 in column 3); outputting an actual image of the extracted defect candidate and data comprising the location of the defect candidate, via a storage medium (lines 41-43 in column 6); storing said outputted actual image of the extracted defect candidate and data comprising the location of the defect candidate (lines 39-41 in column 6) including data enabling the classification of the defect (lines 53-58 in column 6); and displaying on a screen in a map format the defect candidate location data outputted via either said storage medium or network (lines 35-40 in column 4). As Applicant argued in the Appeal Brief filed on April 10, 2007, Mizuno does not teach to display a selected one of the stored actual images of the extracted defect candidates which is designated on the screen among the extracted defect candidate data displayed in said map format on said screen so that the selected one of the stored actual images is displayed together with said map format on said screen. Such a teaching is found in Worster et al. at line 29 in column 13 through line 44 in column 14 and illustrated in FIG. 4, which discloses a display method for another type of wafer method (using a scanning laser rather than a scanning

electron beam) that displays a defect image and a wafer map on the same screen so that an operator can select a stored image of a defect to display by using, for example, a mouse to "point" and "click" on a defect indicated on the wafer map. Since Mizuno teaches, at lines 6-10 in column 7, that stored information can be displayed according to need and that, as is discussed above, both the actual images of defects and a wafer map are stored in a memory, it would have been obvious to a person having ordinary skill in the art to display a selected one of the stored actual images of the extracted defect candidates which is designated on the screen among the extracted defect candidate data displayed in said map format on said screen so that the selected one of the stored actual images is displayed together with said map format on said screen in the manner taught by Worster et al. in order to make use of the point and click system control method disclosed by Worster et al. or to aid an operator in relating the image of a defect to its actual location on the wafer. In this regard, while neither Mizuno nor Worster et al. disclose such a feature, it is well known in the art of maps to vary the magnification of maps in order to balance the ability to show a larger area of the geography portrayed by the map, which requires a smaller amount of magnification, and the ability to pinpoint a particular location on that geography, which requires a larger amount of magnification. Such variable magnification in maps is routinely seen in, for example, road atlases which have maps illustrating roads in countries, states, and selected cities. It is rare to find a map online that does not have a zoom feature that allows an operator to select the magnification of the map. It would therefore have been obvious to a person having ordinary skill in the art to display the wafer map produced by the Mizuno apparatus at a selected magnification of a variable magnification, as is claimed in new claims 35-37.

Claims 10, 11, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno and Worster et al. as applied to claims 3, 5, 6, 12-16, and 25-37 above, and further in view of Gallarda et al. (U. S. Patent No. 6,539,106). As was explained in previous Office actions, Gallarda et al discloses the steps of changing threshold value data for detecting defect candidate of said pattern on said screen and displaying on said screen utilizing said changing threshold (i.e. updating the display in accordance with the changing threshold) (column 8, lines 59-60; column 12, lines 37-42), defect candidate matching (column 13, line 56-column 14, line 19), displaying designated classified defect candidate locations in map format on the screen (column 16, lines 60-63), and producing a list or table from among said classified defect candidates so that they are displayed on said screen discriminately from each other in the map format (column 14, lines 58-62).

(10) Response to Argument

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants argue that none of the references teach to display a stored image and a wafer map at the same time. This argument does not address the rejection that was actually made. Mizuno discloses a method comprising the steps of: irradiating a charged particle on a surface of a substrate on which a pattern is formed (lines 57-65 in column 3); producing an image of said substrate surface by detecting secondary electrons generated from said substrate as a result of the irradiation (line 66 in column 3 through line 8 in column 4); producing a digital image by subjecting the produced image signal to A/D

conversion (lines 37-39 in column 6); comparing the digital image with a reference image and extracting a defect candidate (lines 44-53 in column 3); outputting an actual image of the extracted defect candidate and data comprising the location of the defect candidate, via a storage medium (lines 41-43 in column 6); storing said outputted actual image of the extracted defect candidate and data comprising the location of the defect candidate (lines 39-41 in column 6) including data enabling the classification of the defect (lines 53-58 in column 6); and displaying on a screen in a map format the defect candidate location data outputted via either said storage medium or network (lines 35-40 in column 4). While Mizuno generates both actual images that can be stored and displayed at a later time and a wafer map that shows the locations of the sites corresponding to these images, it is true that Mizuno does not teach to display one of the stored images at the same time that the wafer map is displayed. Worster et al. was cited for the teaching that such a display of a wafer map and images corresponding to locations on the wafer map at the same time is useful. The rejection was based on the *combination* of these references, not either one of the references by itself. The examiner never asserted that the images in the Worster et al. apparatus were stored images. It is irrelevant that Worster et al. displays live images along with the wafer map because the rejection was never based on Worster et al. alone, but the combination of Worster et al. with Mizuno, and Mizuno does teach to display stored images. Worster et al. teaches that by displaying actual images along with a wafer map, a user can develop a better idea of how the defect candidates viewed in the individual images relate in the context of the overall wafer as illustrated by the wafer map. It would therefore have been obvious to a person having ordinary skill in the art to display the stored images and wafer map accumulated by the Mizuno apparatus on the same screen in the manner taught by Worster et al.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jack I. Berman/

Primary Examiner, Art Unit 2881

Conferees:

Robert Kim

Jose G Dees

/Jose' G. Dees/
T-QAS TC 2800

/ROBERT KIM/

Supervisory Patent Examiner, Art Unit 2881